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| APPLICATION NO | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO | CONFIRMATION NO |
|----------------|-------------|----------------------|--------------------|-----------------|
| 10 016,966 | 12 14 2001 | Songgang Qiu | ST22 031 | 7292 |

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[REDACTED] EXAMINER

JONES, JUDSON

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

2834

DATE MAILED: 05 08 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| Application No. | Applicant(s) |
|-----------------|--------------|
| 10/016,966 | QIU ET AL. |
| Examiner | Art Unit |
| Judson H. Jones | 2834 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

4) Claim(s) 19, 25 and 26 is/are pending in the application.

4a) Of the above claim(s) 1-18 is/are withdrawn from consideration.

5) Claim(s) 27-39 is/are allowed.

6) Claim(s) ____ is/are rejected.

7) Claim(s) 20-24 is/are objected to.

8) Claim(s) ____ are subject to restriction and/or election requirement.

Disposition of Claims

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. ____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1201

4) Interview Summary (PTO-413) Paper No(s) ____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-18, drawn to motor structure, classified in class 310, subclass 51.
- II. Claims 19-39, drawn to a motor control circuit, classified in class 318, subclass 114.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the motor structure can be used with digital control circuitry.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Keith D. Grzelak on 4/16/2003 a provisional election was made without traverse to prosecute the invention of group II, claims 19-39. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-18 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Champion 5,836,165 A (cited by Applicant) in view of Dieterle et al. 6,091,887 A. Champion discloses the active vibration control system with a housing, a linear actuator comprising piston 8 and the signal generator, servo and motor drive associated with the piston and discloses a counterbalance mass 10 as described in column 45-49 with a linear actuator comprising the signal generator, servo and motor drive associated with mass 10 but does not disclose using analog control circuitry. Dieterle et al. teaches in column 19 lines 8-21 that analog control circuits can be cheaper and easier to alter by a user than digital computer programs. Since Dieterle et al. and Champion are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized analog control circuitry in

a active vibration control system in order to reduce the cost of the device and to make the device user adjustable without the need to reprogram a digital computer.

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Champion et al. as modified by Dieterle et al. as applied to claim 19 above, and further in view of Nakanishi et al. 5,117,642 A. Champion et al. as modified by Dieterle et al. discloses the vibration control system but does not disclose using fast Fourier transforms to detect vibration frequencies. Nakanishi et al. teaches the usefulness of fast Fourier transforms in column 9-32. Since Nakanishi et al. and Champion et al. as modified by Dieterle et al. are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized fast Fourier transforms to improve the control of vibrations.

Allowable Subject Matter

Claims 27-39 are allowed.

Claims 20-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or teach analog control circuitry for an active vibration control system where the control circuitry comprises voltage divider circuitry as recited in claim 20. The prior art of record does not disclose or teach first and second tuning circuits for first and second axially reciprocating machines that operate in synchronized opposed directions as recited in claims 27 and 36. Champion et al. 5,836,165 A (of record) discloses first and second axially

reciprocating machines that operate in synchronized opposed directions but discloses only a single tuning that tunes one of the machines.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H Jones whose telephone number is 703-308-0115. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JHJ *JHJ*
April 19, 2003

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